

## HIGH-SKILLED EMIGRATION FROM ARMENIA

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**Abstract:** This paper examines the phenomenon of high-skilled emigration, or brain drain, with a specific focus on Armenia. Despite a global Armenian diaspora exceeding seven million, the Republic of Armenia faces increasing challenges associated with the outflow of educated professionals. Using statistical data from the Central Bank of Armenia, the World Bank, and the World Population Review, the study analyzes the dynamics of remittances, foreign direct investment inflows, and brain drain indices in relation to economic indicators such as average salaries and unemployment rates from 2013 to 2024. The findings reveal that Armenia's brain drain is not solely driven by economic factors like wages or unemployment but is also shaped by geopolitical shocks, policy frameworks, and strong diaspora linkages. While migration has generated benefits through remittances, diaspora networks, and educational incentives, the persistent rise of the Brain Drain Index highlights long-term risks to Armenia's socio-economic development. The paper concludes that without targeted policies and improved migration data management, Armenia's growing reliance on external inflows cannot offset the structural challenges posed by high-skilled emigration.

**Key words:** *brain drain, high-skilled migration, remittances, migration policy, diaspora networks, migration policy, human capital*

### Introduction

The emigration of highly skilled workers has remained a central issue in migration and development research for more than five decades. While earlier theoretical contributions emphasized the potentially severe welfare losses for sending countries, more recent empirical studies suggest that the net effects of high-skilled migration depend on institutional capacity, economic structure, and the ability of origin countries to leverage diaspora linkages. In the case of Armenia, however, structural vulnerabilities associated with its small size, limited labor market depth, and geopolitical exposure

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increase the long-term risks associated with sustained high-skilled emigration. Armenia has historically been a country of emigration, resulting in a global Armenian population of about 10 million, of which only 3 million reside in the Republic of Armenia. Over time, large and influential Armenian communities have formed in Russia, the United States, France, Lebanon, Ukraine, and many other countries (Айрапетян, 2016). These diaspora centers play a crucial role in shaping Armenia's foreign economic relations, serving as important bridges for trade, investment, and cooperation. In addition, remittances sent from abroad constitute a significant source of financial inflow, which not only supports households but also contributes to the overall stability and development of Armenia's economy. In general, there is limited statistical data on the diaspora involvement in Armenia. Developing a diaspora engagement program requires a clear understanding of what diaspora represents. The IOM (2019, p. 49) defines diaspora as “migrants or descendants of migrants whose identity and sense of belonging, either real or symbolic, have been shaped by their migration experience and background. They maintain links with their homelands and to each other based on a shared sense of history, identity, or mutual experiences in the destination country (Айрапетян, 2016).

Migration has been a constant feature throughout human history, describing the movement of people from one location to another, either temporarily or permanently, often motivated by social, economic, or personal factors (Contini P., Carrera L., 2022). When large numbers of educated individuals leave a country within a relatively short time, the phenomenon known as brain drain can occur. This challenge is most common in least-developed and developing countries, which, due to lower living standards, struggle to retain or attract highly skilled professionals compared to developed nations. So, the term “**brain drain**” refers to the large-scale migration of highly educated and skilled individuals from one country to another. While it most often describes the flow of human capital from developing to developed nations, it can also occur horizontally, involving the movement of professionals such as engineers, physicians, and scientists between developed countries. The primary drivers of brain drain include significant differences in working conditions, salaries, and career advancement opportunities between origin and destination countries; poverty and limited economic growth in the source country; discrimination, political repression, and restrictions on personal freedoms; environmental crises and the growing impact of climate change; ongoing military or civil conflicts.

**The aim** of this paper is to investigate the scale, drivers, and consequences of high-skilled emigration from Armenia, with a particular focus on its economic and social implications. By analyzing statistical data on remittances, foreign direct investment, salaries, unemployment, and brain drain indices, the study seeks to identify the underlying factors influencing skilled labor mobility and assess the long-term risks and opportunities for Armenia's development.

**Research methods.** This study employs a quantitative descriptive and comparative research design aimed at examining the dynamics, potential drivers, and economic implications of high-skilled emigration from Armenia. The analysis is based on secondary data obtained from internationally recognized and official sources, including the Central Bank of Armenia, the World Bank's World Development Indicators, and the World Population Review database. The empirical investigation covers the period 2013–2024. The primary indicator used to assess high-skilled emigration is the Brain Drain

Index. To explore potential determinants and consequences of brain drain, the index is examined in relation to selected macroeconomic variables, including average annual wages, unemployment rates, remittance inflows, foreign direct investment (FDI) net inflows, share of research and development expenditures in GDP and researchers in research and development (per million people). The methodological approach consists of trend analysis, cross-variable comparison, and descriptive correlation assessment. Graphical analysis is used to identify patterns, co-movements, and structural shifts across time. Particular attention is paid to periods characterized by geopolitical and economic shocks in order to assess the sensitivity of migration dynamics to external factors.

The study does not attempt to establish strict causal relationships through econometric modeling; rather, it aims to evaluate whether commonly cited labor-market indicators sufficiently explain fluctuations in Armenia's Brain Drain Index and to assess the broader structural context within which high-skilled migration occurs. One limitation of the research is the reliance on available aggregate-level data, as Armenia lacks a comprehensive and integrated migration statistics system, particularly with respect to high-skilled emigration and return migration flows. This constraint limits the possibility of conducting micro-level or sector-specific analyses. Despite these limitations, the methodology allows for a systematic examination of migration trends and their macroeconomic context, providing an analytical foundation for identifying structural patterns and policy-relevant implications.

### **Main part**

The welfare implications of factor flow between countries, unlike those of flows of goods, have received very little theoretical treatment to date. It is widely accepted that emigration of highly skilled people constitutes a loss to a country and fairly generally agreed that emigration of unskilled labor can improve the lot of the remaining population (Berry A., Soligo R. 1969). Berry and Soligo (1969) also argue that while emigration deprives sending countries of skilled labor, these losses can be partly offset through migrants' remittances and the transfer of knowledge back to the home country. Bhagwati and Hamada (1974) emphasize the social externalities associated with highly skilled workers at a time when human capital was becoming increasingly central in development economics (Bhagwati J., Koichi H., 1974). Concerns over brain drain also extended to its public finance implications: while developing countries bear the costs of educating emigrants, the economic returns on these investments are largely captured by high-income destination countries. In addition, migrant-sending countries face substantial tax revenue losses due to the departure of individuals with higher earning potential. A further concern was that large-scale emigration of skilled workers could exacerbate existing inequalities between the rich and the poor. There also exists literature that discusses how high-skilled migration might generate welfare gains for the sending countries. This is the opposite of the "brain drain" effect and is called "brain gain". Stark, Helmenstein, and Prskawetz (1997) illustrate "brain gain" through cross-country wage differentials and information asymmetries between migrants and host-country employers. Wage gaps encourage individuals to invest in additional education with the intention of migrating (Oded S. et al., 1998). In other words, individuals choose to invest in human capital since the anticipated higher earnings abroad outweigh the costs of education. Consequently, the country's overall stock of human capital becomes greater than it would have been in

the absence of migration opportunities (Oded S., Yong W., 2002). For example, in case of Moldova following independence in the early 1990s, there was a substantial wave of emigration from Moldova, a process that ebbed over the following decade. However, emigration has again increased since the early 2000s, partly driven by closer integration with the EU and in line with patterns seen in other Central and Eastern Europe (CEE) and certain former Soviet Union (FSU) economies. The drivers of Moldovan emigration have ranged from political uncertainty and humanitarian issues to limited economic opportunities and social security. While the emigration of working-age Moldovans creates economic and demographic challenges, it also creates substantial potential. The country's large diaspora could be harnessed to provide the skills, new ideas, capital and networks necessary to experiment with new ideas and create value, underpinning sustainable growth in the decades ahead<sup>1</sup>.

In recent decades, migratory waves have significantly reshaped the global economic landscape, with countries increasingly competing to attract highly skilled human capital. While evidence shows that developing nations are most negatively affected by brain drain, its overall impact can be viewed in both positive and negative terms—depending on whether it is assessed from the standpoint of the source country, the destination country, or the migrants themselves (Tiankuo Li, 2025). Positive effects of brain drain can encourage greater investment in education within source countries, as individuals may view advanced qualifications as a pathway to future migration; it can generate positive economic effects for source countries by boosting remittance inflows, lowering international transaction costs, and fostering trade links; brain drain can strengthen diaspora networks, promoting the exchange of knowledge, innovation, and technology between origin and destination countries; it may also support circular migration, enabling both sending and receiving countries to benefit from the mobility of skilled labor. Negative effects outside the departure of skilled and innovative individuals diminish the socio-economic potential of source countries; a reduction in tax revenues limits the capacity of source countries to finance public spending; large-scale emigration can create labor shortages in critical sectors such as education and healthcare; in destination countries, migrants may encounter bureaucratic hurdles that prevent them from working in their field of expertise.

Taking into account the above, we can state that migration and human mobility remain a central trend of the twenty-first century and one of the most topical and complex issues of our time. International labor migration is a transnational phenomenon and cannot, therefore, be effectively managed or addressed only at the national level. It needs to also be addressed at the bilateral, regional and international level<sup>2</sup>. There are significant gaps in migration data management in Armenia. Migration statistics are not comprehensive and at times lack accuracy. Data collection on exits and returns is incomplete. Data gaps hinder the development of evidence-based, effective and inclusive migration policies. Compliance reporting on migration statistics is not in place. There are essential gaps in migration management data capacities, needed for streamlining data collection, analysis and exchange between agencies involved in migration management,

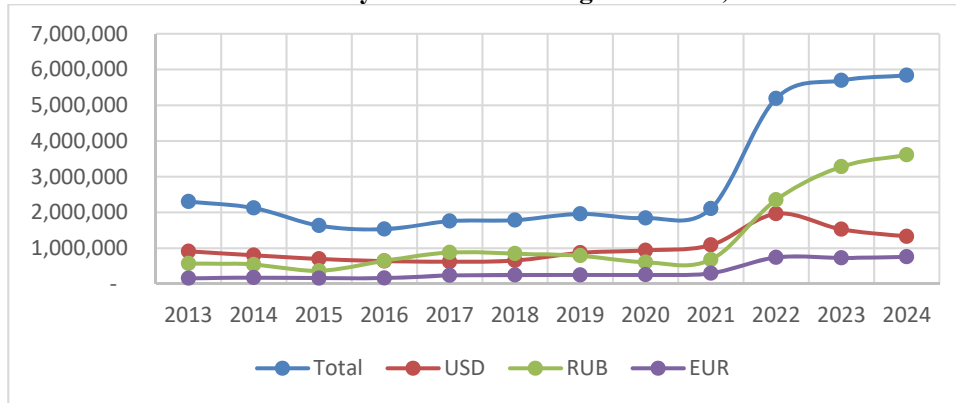
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<sup>1</sup> Innovation for Sustainable Development, Review of Moldova, United Nations Economic Commission for Europe, Geneva, 2021.

<sup>2</sup> International Organization for Migration, Labor Migration in Armenia. Existing Trends and Policy Options, 2012.

based on a common priority set of migration indicators. The administrative information source for migration in Armenia is the State Population Register, which does not fully reflect the data on population movements, given the fact that people mostly do not inform the Police about their movements and hence are left out of the migration statistics<sup>3</sup>. Besides this, we found that there is not sufficient data or literature about high-skilled (brain drain) emigration from Armenia, especially at a national level. For example, we could not find anything concerning to high-skilled emigration in Armenia's Migration Strategy for 2017-2011 or in Armenia's Mission Strategy (2022-2025), (Chobanyan H., 2019).

**Chart 1. Total money transfers of individuals received from abroad through commercial banks of RA by currencies during 2013-2024, thousand dollars**



Source: Central Bank of Armenia

Total money transfers of individuals sent to and received from abroad through commercial banks of RA by currencies

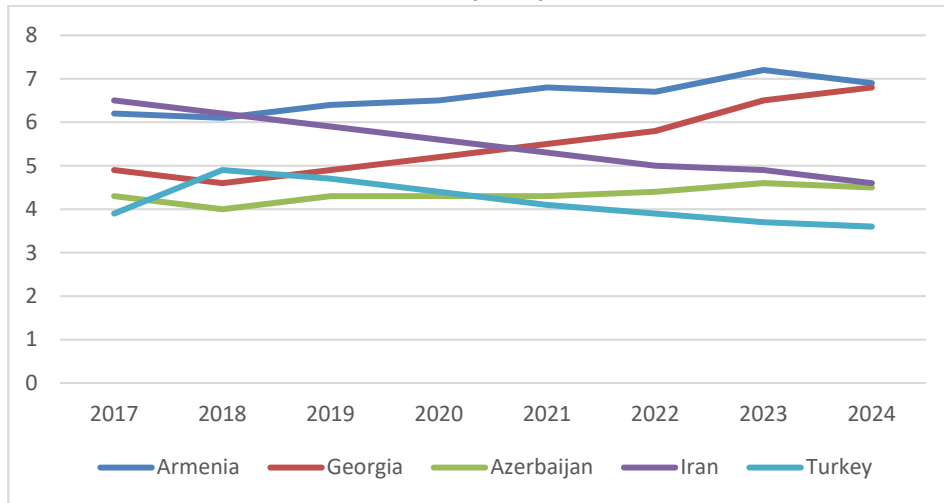
Armenia is a country characterized by dynamic human mobility, with almost every tenth household having a migration connection and a Diaspora of an estimated seven million people. Thus, the Armenian economy is highly dependent on remittances (See Chart 1). Analyzing Chart 1, we can notice that before 2022, total flows were modest and stable. Moreover, during 2013-2015 and 2019-2021, USD flows were dominant. After 2021 a dramatic surge occurred, with RUB and EUR gaining prominence, while USD lost dominance. This shift likely reflects geopolitical and economic events (Russian-Ukrainian war)—most probably linked to sanctions, currency realignments, and changes in regional trade and financial flows.

In Chart 2 Brain Drain Index is presented for Armenia and its neighboring countries. As we can notice between 2017 and 2024, Armenia and Georgia faced escalating brain drain, becoming the two most affected countries by 2024. Azerbaijan remained stable at a moderate level, while Iran and Turkey experienced declining levels, possibly due to structural or external constraints on migration rather than improved domestic conditions. A relatively high brain drain index means that Armenia experienced a rising outflow of skilled professionals. Here, taking into account that Armenia also is a small developing country, a relatively high brain drain index will have a much more negative impact on

<sup>3</sup> IOM ARMENIA MISSION STRATEGY (2022-2025), available at [https://crisisresponse.iom.int/sites/g/files/tmzbd11481/files/appeal/documents/IOM-Armenia-Country-Strategy\\_22-25.pdf](https://crisisresponse.iom.int/sites/g/files/tmzbd11481/files/appeal/documents/IOM-Armenia-Country-Strategy_22-25.pdf)

Armenia’s economy in the long run perspective. Here also we would like to mention that the return of highly skilled migrants largely depends on the economic and political conditions in their home country. When these conditions are unfavorable, experience shows that return incentives often prove ineffective.

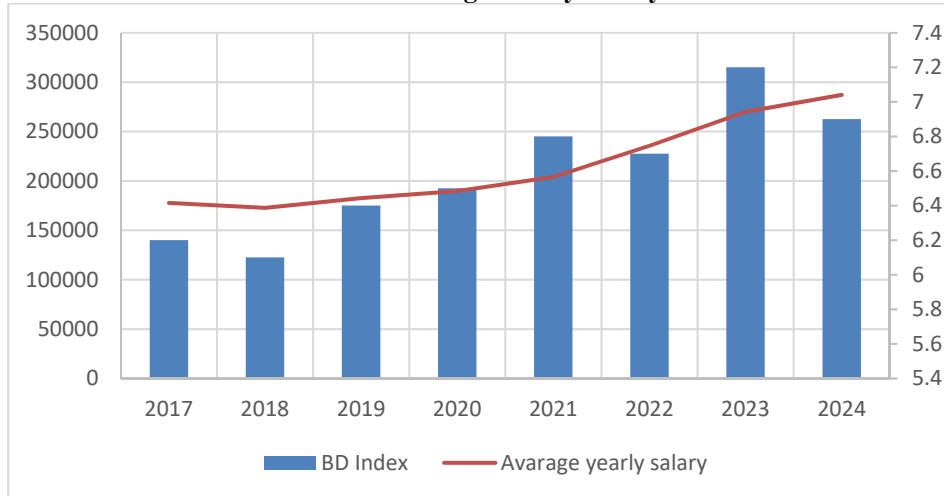
**Chart 2. Brain Drain Index in Armenia and its Neighboring Countries in 2017-2024**



Source: World Population Review, Brain Drain Countries

In order to find out the reason for the relatively high brain drain index in Armenia, we tried to get the relationship between the brain drain index and the average yearly salary in Armenia (see Chart 3).

**Chart 3. Brain Drain Index and Average Yearly Salary in Armenia in 2017-2024**

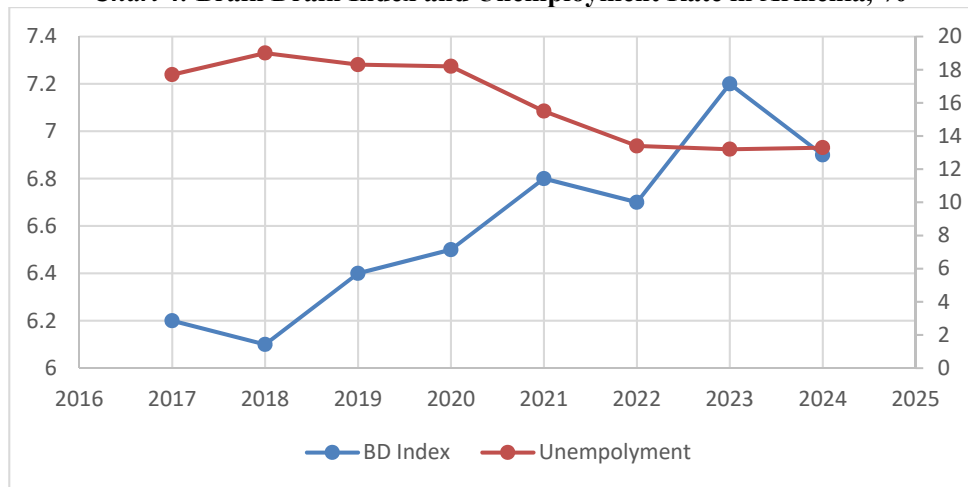


Source: World Population Review, Brain Drain Countries and World Bank Group, World Development Indicators

Analyzing chart 3, we can state that as salaries rise steadily, the Brain Drain Index shows fluctuations. Moreover, the highest Brain Drain Index (2023) coincides with a strong rise in salaries, suggesting that even with increasing salaries, the brain drain index peaked. As the early researches show, 20% of the potential migrant households surveyed were categorized as “bad living conditions”, 47% “average living conditions” and 33% “best living conditions”. Interest in migration varies only slightly across the social condition categories, with those households living in better social conditions having slightly more prospective migrants<sup>4</sup>. So, it is clear that in the case of Armenia, Brain Drain (Brain Drain Index) is not strictly salary-driven and although higher wages may reduce emigration incentives, other push/pull factors strongly affect the index. For example, policy shifts or external shocks (like geopolitical or economic events) as well as a huge Diaspora (reuniting with the family) may explain the sharp changes in the Brain Drain Index between years. The steady salary growth trend indicates improving economic conditions, but it hasn’t been sufficient to consistently counteract brain drain.

Next we tried to get relationships between the Brain Drain Index and Unemployment rate (See Chart 4).

**Chart 4. Brain Drain Index and Unemployment Rate in Armenia, %**



Source: World Population Review, Brain Drain Countries and World Bank Group, World Development Indicators 2025

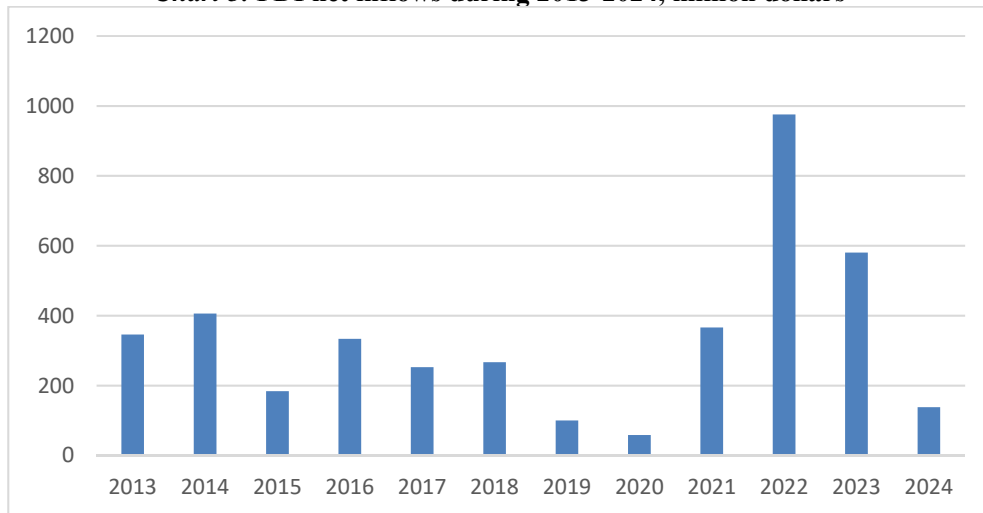
Analyzing data in Chart 4, we notice that in general there exists an inverse relationship between the Brain Drain Index and the unemployment rate in Armenia. The strongest effect appears between 2019 and 2022, when both indicators move in opposite directions. So as in the case of average yearly salary, we can state that the brain drain index level is not explained by the unemployment rate in Armenia, and there exist other factors that strongly affect the brain drain index.

Brain drain remains a crucial issue for the development of Armenia, if not in the short run, then in the long run definitely. High-skilled emigration can generate significant

<sup>4</sup> Caucasian Research Resource Centers, “Migration and Skills in Armenia”, European Training Foundation, 2013.

benefits when supported by appropriate institutions, such as substantial remittance inflows, the transfer of knowledge, and increased foreign direct investment and trade. We already presented the remittances' impact on RA's economy (see Chart 1), and in the case of remittances, in the case of FDI net inflows, the impact is not significant (see Chart 5).

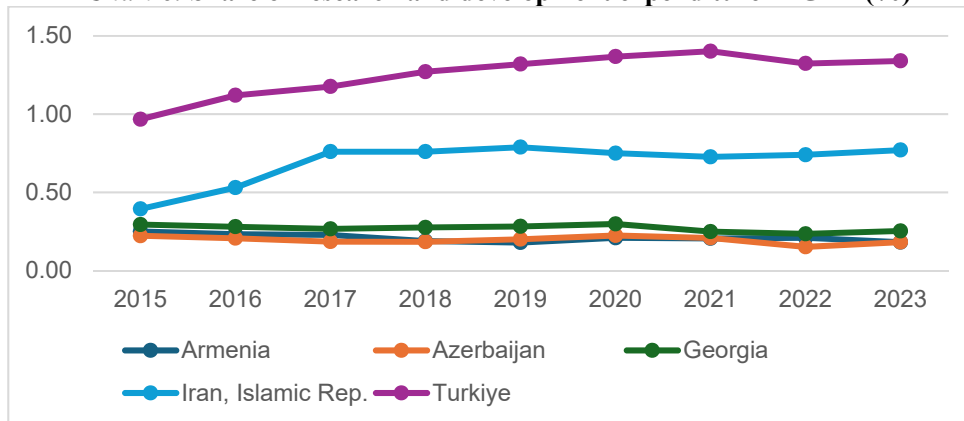
**Chart 5. FDI net inflows during 2013-2024, million dollars**



Source: World Bank Group, World Development Indicators 2025

Analyzing the Chart 5 data, we can state that in the case of Armenia, significant FDI inflows were not noticed during 2017-2014. Noticeable growth in 2022 is mainly explained by geopolitical and economic events (Russian-Ukrainian war). Moreover, as we can see in 2023 and 2024, we have a decreasing tendency of FDI net inflows to RA's economy.

**Chart 6. Share of research and development expenditure in GDP (%)**



Source: World Bank Group, World Development Indicators 2025

In the case of human capital development, knowledge transfer, and decreasing the innovation gap effects of skilled migration, it tends to present the "brain drain" as an opportunity for sending countries (Mariani F., 2008). In order to find out the effects of "brain drain" on human capital development, knowledge transfer, and innovation gaps, we analyzed the share of research and development expenditure in GDP. As we can see from Chart 6, the share of research and development expenditures in GDP is very close for Armenia, Georgia, and Azerbaijan. Moreover, in the case of Armenia, the share of research and development expenditures in GDP has not increased during 1997-2023 but decreased from 0.25% to 0.18%. Comparing with Armenia, Georgia and Azerbaijan the share of research and development expenditures in GDP is significant in Iran and Turkey.

**Table 1. Researchers in research and development (per million people)**

	2021	2022	2023
Armenia	-	1187	1039
Azerbaijan	1743	1702	1663
Georgia	1702	1808	1768
Iran	2239	-	-
Turkey	2209	2478	-

Source: World Bank Group, World Development Indicators 2025

And finally, in Table 1, we presented the number of researchers in research and development per million people. Analyzing Table 1, we notice that in Armenia the number of researchers in research and development (per million people) is the smallest among Azerbaijan, Georgia, Iran and Turkey. Armenia lags behind other countries in the region in terms of both funding and the number of researchers, which may limit opportunities for scientific productivity and innovative development. In general, we can indicate that the main centers of scientific research potential in the region are Turkey and Iran, while funding for science and human resource development in the South Caucasus countries remains a challenge. The regional comparison suggests a positive association between R&D investment and the availability of research personnel. Countries with higher R&D expenditure, such as Turkey and Iran, maintain substantially larger research communities, whereas Armenia exhibits both relatively low R&D intensity and a declining number of researchers. These patterns are consistent with the hypothesis that insufficient investment in research and innovation contributes to the emigration of highly skilled workers, thereby exacerbating brain drain and weakening the country's long-term innovation and growth potential.

### Conclusion

The initial objective of this study was to investigate the scale, drivers, and consequences of high-skilled emigration from Armenia. The empirical findings, however, demonstrate that traditional macroeconomic indicators, specifically average wages and unemployment rates, do not sufficiently explain fluctuations in Armenia's Brain Drain Index during 2013–2024. The absence of a strong and stable relationship between these variables suggests that the determinants of high-skilled emigration extend beyond short-term labor market conditions.

The empirical analysis for 2013–2024 indicates that Armenia’s Brain Drain Index has demonstrated an upward trend, with fluctuations influenced more strongly by geopolitical shocks, migration networks, and institutional factors than by wage levels or unemployment rates alone. Rising salaries and moderate improvements in macroeconomic indicators have not been sufficient to reverse outward mobility trends. At the same time, remittances constitute a significant stabilizing factor for the Armenian economy, while foreign direct investment inflows remain volatile and largely influenced by external developments. These findings suggest that Armenia’s growing reliance on external inflows does not compensate for the gradual erosion of its domestic human capital base.

Given this evidence, policy responses must move beyond narrowly defined retention strategies. First, strengthening migration data governance is essential. The absence of comprehensive and integrated migration statistics constrains evidence-based policymaking. Establishing coordinated inter-agency data systems, harmonizing migration indicators, and improving monitoring of exits and returns would enhance institutional capacity and policy design. Second, Armenia’s migration framework could benefit from shifting conceptually from “brain drain prevention” toward “brain circulation management.” Rather than attempting to restrict mobility, policy instruments may focus on facilitating temporary migration, structured return, and knowledge exchange. Mechanisms such as streamlined recognition of foreign qualifications, targeted reintegration incentives for returnees, and sector-specific programs in strategically important industries (healthcare, IT, engineering, education) could mitigate long-term human capital losses. Third, diaspora engagement requires deeper institutionalization. Armenia’s extensive global diaspora represents not only a source of remittances but also a potential channel for knowledge transfer, innovation partnerships, and productive investment. Structured cooperation platforms linking diaspora professionals with domestic universities, research institutions, and private-sector actors may enhance technology diffusion and entrepreneurial development without requiring permanent return. Fourth, migration policy should be integrated into broader economic risk management strategies. As demonstrated by the sharp shifts following geopolitical shocks, Armenia’s migration dynamics are highly sensitive to external developments. Coordinated bilateral and regional cooperation frameworks, combined with domestic institutional strengthening, would improve resilience and labor mobility governance.

Countries such as Turkey and Iran, which invest more intensively in research and development and maintain larger research communities, exhibit lower levels of brain drain. In contrast, Armenia combines relatively low R&D expenditure and a declining number of researchers with one of the highest Brain Drain Index values in the region. These findings support the argument that insufficient investment in research and innovation may contribute to the emigration of highly skilled individuals, thereby weakening the country’s scientific potential and long-term economic growth prospects.

In conclusion, high-skilled emigration represents a complex structural challenge for Armenia. While migration generates measurable short-term benefits through remittances and transnational networks, the persistent rise in skilled outflows poses long-term risks to human capital accumulation, fiscal capacity, and sustainable growth. The policy objective, therefore, should not be the elimination of migration, but its strategic management. Without comprehensive data systems, strengthened institutions, and

targeted human capital policies, Armenia's development trajectory may remain constrained by the continued externalization of its skilled workforce.

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